

Claims

1. Method for delineating a conducting element (1) disposed on an insulating layer (2), comprising deposition of a conducting layer (3) on the front face of the insulating layer (2) disposed on a substrate (4), formation of a mask (5) on at least one area (6) of the conducting layer (3) designed to form the conducting element (1), so as to delineate in the conducting layer at least one complementary area (7) not covered by the mask (5), the complementary areas (7) of the conducting layer (3) being rendered insulating by oxidation, method characterized in that the conducting layer (3) is formed by a first (3a) and second (3b) conducting layers, the method comprising etching of the second conducting layer (3b) by means of the mask (5), oxidation being performed after the mask (5) has been removed, so that the surface of the second conducting layer (3b) is oxidized on the side walls and on the front face and that the complementary areas (7) of the first conducting layer (3a) are oxidized over the whole thickness of the first conducting layer (3a).
2. Method according to claim 1, characterized in that the complementary areas (7) of the conducting layer (3) form a solid oxide after oxidation.
3. Method according to claim 2, characterized in that the first conducting layer (3a) is made of TiN and the second conducting layer (3b) is made of polycrystalline silicon.

4. Method according to claim 1, characterized in that, during oxidation, the material of the conducting layer (3) and the oxygen form a volatile oxide, the conducting layer (3) evaporating at least partly during oxidation.
5. Method for delineating a conducting element (1) disposed on an insulating layer (2), comprising deposition of a conducting layer (3) on the front face of the insulating layer (2) disposed on a substrate (4), formation of a mask (5) on at least one area (6) of the conducting layer (3) designed to form the conducting element (1), so as to delineate in the conducting layer at least one complementary area (7) not covered by the mask (5), the complementary areas (7) of the conducting layer (3) being rendered insulating by oxidation, method characterized in that it comprises stabilizing and evaporating annealing so that the material of the conducting layer (3) and the oxygen arising from oxidation form a volatile oxide, the conducting layer (3) evaporating at least partly.
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6. Method according to any one of the claims 1 to 5, characterized in that oxidation of the complementary areas (7) of the conducting layer (3) comprises oxygen implantation.
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7. Method according to any one of the claims 1 to 5, characterized in that oxidation of the complementary areas (7) of the conducting layer (3) comprises thermal oxidation.
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8. Method according to any one of the claims 1 to 7, characterized in that the complementary areas (7) rendered insulating have a thickness at least equal to one atomic layer.

9. Method according to any one of the claims 1 to 8, characterized in that it comprises a thermal stabilization step in an inert atmosphere at the end of oxidation.
- 5 10. Method according to any one of the claims 1 to 9, characterized in that deposition of the conducting layer (3) comprises a first step of deposition of a first conducting layer (3a) and a second step of deposition of a second conducting layer (3b) on the front face of the first conducting layer (3a).
- 10 11. Method according to claim 10, characterized in that it comprises etching of the second conducting layer (3b) after formation of the mask (5) and before oxidation.
- 15 12. Method according to one of the claims 10 and 11, characterized in that the material of the first conducting layer (3a) is taken from the group comprising tungsten, molybdenum, nickel and cobalt, and the material of the second conducting layer (3b) is polycrystalline silicon.
- 20 13. Device comprising a conducting element (1) disposed on an insulating layer (2), characterized in that it is obtained by the method according to any one of the claims 10 to 12, the area (6b) of the second conducting layer (3b), designed to form the conducting element (1), being salient at the periphery of the area (6a) of the first conducting layer (3a).
- 25 14. Transistor comprising a gate electrode, characterized in that the gate electrode is achieved by the method according to any one of the claims 1 to 12.